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ABSTRACT

This study evaluated the attitudes and beliefs of 68 undergraduate preservice teachers in the fourth year of a teacher training program at the National Institute of Education (Singapore). The preservice teachers completed a survey of attitudes toward different assumptions of inclusion, perceptions of self-efficacy, and competence. Results suggest that respondents saw integration of these children as "desirable" but not "feasible." Respondents indicated that, in order to teach children with disabilities in regular classes, they would need help in behavior management, teaching strategies, classroom planning, and curriculum adaptation. Teachers' attitudes were affected by such variables as efficacy, perceived competency in behavior management and teaching, and special education knowledge. The study's findings are detailed in 14 tables. (Contains 35 references.) (DB)

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Abstract

Over the past few years in Singapore, children with different disabilities have been integrated within regular schools. To facilitate the integration movement, improvements and modifications have been made to the physical environment. This has made the environment more accessible to children with disabilities and enhanced the opportunities for integrating more pupils with disabilities.

In promoting integration of children with disabilities in the regular classes much emphasis has been placed on the preparation of teachers to develop skills and attitudes conducive to integrating these children. Pre-service education can play a crucial part in success of future integration efforts. Equipping prospective teachers with skills and competencies necessary to teach children with disabilities will in fact help *all* children. If the needs of children are met in regular classrooms, there will be fewer or no referrals of children to special schools.

This study evaluated the attitudes and beliefs of pre-service teachers towards teaching children with disabilities within regular classrooms. Sixty-eight (N = 68) undergraduate pre-service teachers enrolled in the 4th year teacher training program at the National Institute of education (NIE), Singapore, were surveyed. The pre-service teachers completed a survey of attitudes toward different assumptions of inclusion, perceptions of self-efficacy and competence.

The pre-service teachers expressed some mixed, contradictory feelings. The results suggest that they saw integration of these children as 'desirable' but not 'feasible'. The pre-service teachers indicated they needed more help in behaviour management, teaching strategies, classroom planning and adaptation of curriculum among other areas of teaching, if they were to teach children with disabilities in regular classrooms. Implications of the findings for teacher education are discussed. Tables showing the results obtained and 35 references are included.

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Rao

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BELIEFS AND ATTITUDES OF PRE-SERVICE TEACHERS TOWARDS TEACHING CHILDREN WITH DISABILITIES

Special education in Singapore has progressed tremendously since its formal inception in 1947 in the form of Trafalgar Home where groups of volunteers conducted classes for children with leprosy Eversince, the last five decades have witnessed the founding of various associations offering educational services for children with different disabilities.

The dual system of education, Regular Education (mainstream education) and Special Education has been in existence in Singapore ever since the inception of the latter in 1947. As of 1998, the Ministry of Education (MOE) documented 16 special schools under its purview with a total enrollment of 3550 students. This number however does not include private schools or centres set up for children with disabilities and their enrollment. The special schools and other centres under the purview of the Ministry of Education are run by the Voluntary Welfare Organisations (VWOs). The special schools receive 50% of the funds from the Ministry of Education and the other 50% from the Community Chest of Singapore (an autonomous fundraising body under the umbrella of the National Council of Social Service). During the past few years, the regular education system in Singapore is seeing a slow but steady move towards the integration of children with different disabilities in the mainstream of education.

To facilitate the integration movement, improvements and modifications have been made to the physical environment. This has made the environment more accessible to children with disabilities and enhanced the opportunities for integrating more pupils with disabilities. Since 1996 specific programs have been set up which seek to integrate children with physical disabilities and autism. Programs such as the Therapy and Education Assistance for Children in Mainstream Education (TEACH ME, established in 1996) and Reach-Me (established in 1997) were set up to integrate children with physical disabilities and autism respectively, within mainstream education. These programs have received support from the Government. However, a number of regular education teachers are still referring students with mild to moderate learning and intellectual disabilities to special schools. This segregation is an opposing trend to the integration movement. Pre-service teachers are one of the principal stakeholders in the move towards non-segregation/integration of children with mild/moderate disabilities.

If the needs of children with disabilities are to be met successfully in the mainstream of education, teachers need to be adequately prepared. Siegel and Jausovec (1994: 3) state that teachers' fears of working with children with disabilities should be reduced by increasing their knowledge and skills in how to work with these children **before** they actually start work with them. Reynolds and Birch (cited in Hoover, 1984: 33) found that teachers indicated they desired training **prior** to receiving children with disabilities in their classes and that a need exists to prepare teachers at the pre-service level. Denti and Atkinson (1994: 3) report that pre-service teachers desired more help and training especially in behavior management at the pre-service level. Studies by Rebber, (1995) and Andrwes and Clementson (1997) report preference expressed by pre-service teachers for practicum experiences allowing opportunities for teaching students with disabilities over an overview course emphasising only general characteristics of children with disabilities. Lindsey, Ghose and Ramasamy (1996: 10) state that teacher education programs are not adequately preparing general educators to meet the needs of children with disabilities. These authors further emphasise that teacher education programs must design courses consisting of classroom and practical activities to promote pre-service teachers' perceptions, knowledge base and skills related to inclusionary practice.

Factors such as race, gender, educational level and inclusive-education experience have been found to influence pre-service teachers' perceptions regarding children with disabilities and their attitudes toward teaching them in integrated classrooms (Hoover, 1984: 33; Lindsey et al. 1996: 3; Stone and Brown, 1986-87: 7). Soodak, Podell & Lehman (1998: 480) report that teachers' willingness to include students with disabilities in their classes is critical to the successful implementation of inclusion. Evidence of negative attitudes attributed to lack of training have been reported by a number of researchers [Houck; Lobosco & Newman; Philips, Alfred Brulle & Shank; O' Reiley and Duquette; Siegel; & Quay (cited in Siegel & Jausovec, 1994: 3)]. Schumm and Vaughn (1998: 3) state that lack of competence and the inadequate preparation of teachers can lead to pre-mature inclusion.

An important factor that has been found to have a strong influence on pre-service teachers' perceptions of teaching children with disabilities is their perceived sense of self-efficacy. Teacher efficacy has been reported to have a high positive correlation with attitude toward children with

disabilities and teaching them in mainstreamed classes. According to Dembo and Gibson (cited in Ghaith & Yaghi, 1997: 452), teachers' sense of efficacy was one of the best predictors of the percentage of goals achieved, amount of teacher change and improved student performance. Efficacy has been shown to be related to the effectiveness of teaching practices with low-achieving students (Ashton & Webb, 1982). A number of researchers have found a significant positive correlation between teachers' sense of efficacy and attitudes and beliefs toward inclusion [Minke, Bear, Deemer & Griffin, 1996: 152; Nomanbhoy, Lim & Vasudev, 1998: 5; Soodak & Podell (cited in Soodak et al, 1998: 482); Sparks (cited in Ghaith & Yaghi, 1997: 451) & Stone & Brown, 1987: 7].

Significance of the Study

In spite of the current developments in Singapore towards the integration of children with disabilities in regular education, a disturbing trend is noted. This concerns the continuing referrals of children with mild and moderate disabilities from mainstream education to special education. Every year, children are referred to special education schools from mainstream education schools. These children come from regular child-care centres, kindergartens and primary schools. The children coming from primary schools would have spent anywhere between one to six years in the normal stream. The common reasons for referrals at the different levels are behaviour problems and failure in class, short attention span and emotional problems. Regular education teachers, who are unable to cope with these problems in the regular classroom setting, refer these children to special schools. Inability to cope with these children could be due to a combination of one or more factors. These factors include possible lack of skills and training necessary, a conducive environment to include these children with support from principal, other school personnel, adequate resources to teach including a flexible curriculum and the physical environment.

Many of these children fall in the mild to moderate disability range and have attained relatively high levels of general cognitive ability and social skills because of the presence of age-appropriate models and generally higher expectations within regular schools. Once referred and placed in special education setting, their chances of going back to normal stream are virtually non-existent. In many cases, once out from the normal stream, the children suffer a break in their education before being admitted to special schools. This break or wait time is due to the lack of vacancy at the appropriate level in special schools. Once in a special school, with no age appropriate models to follow and a

different emphasis on subjects taught, these children have been observed to stagnate. With lower academic expectations from special education teachers and no age appropriate behaviour/cognitive models to follow, the behaviour problems are often observed to worsen accompanied with an increase in emotional problems as these children resent being associated with special schools. Looking into possible ways of making the retention of these children in the mainstream of education feasible will benefit staff and pupils of both regular education schools and special education schools, helping them to manage their pupils in general better. Staff can for example, review management policies related to identifying and intervening with problem behaviour, lower academic standing and/or emotional problems of students. These are some of the reasons for referral of these children to special schools.

If these children with mild to moderate disabilities can be included in the regular education classroom with support from teachers and other school personnel, it would benefit children with and without disabilities. The non-segregated diverse population of children will offer many opportunities for creating schools and communities that are inclusive and sensitive to individual differences.

Research is apt with various studies that have reported benefits of including children with disabilities with children without disabilities in regular education classrooms.

Staub and Peck (1994/1995) reviewed available research on benefits of inclusion. Potential benefits of inclusion for non-disabled students who had to care for or tutor class-mates with disabilities are reported. Reduced fear of human differences, increased comfort and awareness, enhanced cognition, self concept and a sense of belonging, personal principles and warm and caring friendships are some of the important benefits. Baker, Wang and Walberg (1994/1995) carried out a synthesis of research on the effects of inclusion on learning. They compared the effects of inclusive versus non-inclusive educational practices for students with disabilities Special students educated in regular classes did better socially and academically in inclusive classrooms Banerji and Dailey (1995) examined the effects of an inclusion program in grades 2-5 on students with specific learning disabilities. Teacher and parent perceptions of the normally achieving and those with specific learning disabilities and anecdotal records were analysed. Students with specific learning disabilities made academic and affective gains at a pace comparable to normally achieving pupils, parent and teacher surveys indicated improved self-esteem in students with learning disabilities. Giangerco,

Dennis, Cloninger, Edelman and Schattman (1993) describe experiences of general education teachers who have had a student with severe disabilities in their class. Questionnaire responses of 18 teachers, interviews with 19 teachers of Kindergarten through Grade 9 studied impact on children with disabilities and teachers. Improvement in awareness and responsiveness, better skills acquisition, opportunities, enjoyment and challenges in children with disabilities was reported. Teachers recognised their importance as a model for class and experienced a sense of pride and confidence in themselves. Manset and Semmel (1997) compared eight different inclusive models for elementary students with mild disabilities. They quantified academic outcomes and discussed to see if inclusive programs for students with mild disabilities are effective. Many students with mild disabilities made gains of different degrees in different inclusive models. Gains compared subjeects such as language arts, reading, and math. Hunt and Goetz (1997) reviewed results of nineteen investigations of inclusive educational programs, practices and outcomes for students with severe disabilities. They focused on parents' perceptions of impact of inclusive placements, educational achievement outcomes for students, and social relationships and friendships in inclusive settings. All parents reported a dramatic growth in speech, language and communication skills of children. They had more friends and showed appropriate social behaviour.

Purpose of the Study

Against the background described above, this study was undertaken to assess the attitudes and beliefs of the 4th year pre-service teachers enrolled in the Bachelor of Arts [BA]/Bachelor of Science [BSc] with Diploma in Education [Dip Ed] and BA/BSc with Dip Ed Physical Education (PE), [Dip Ed (PE)] programs at the National Institute of Education (NIE)/Nanyang Technological University (NTU), Singapore, towards teaching pupils with disabilities in regular education classroom. These programs prepare teachers who will teach in regular education classrooms. Students' attitudes were assessed through a questionnaire that surveys attitude toward some assumptions about the inclusion of children with disabilities in regular classrooms and perceptions of self-efficacy and competence. More specifically, the study aimed to answer the following *research questions.*

Research Questions.

1 What are the beliefs/attitudes of pre-service teachers toward teaching children with disabilities within regular classrooms?

2. Are the beliefs and attitudes of pre-service teachers toward teaching children with disabilities in

regular classrooms and their personal competence related to (a) gender (b) previous contact with children with disabilities in their classroom during teaching practicum and/or, (c) knowledge gained through related topics in coursework?

3. What is the relationship between the beliefs and attitudes of pre-service teachers toward teaching children with disabilities in regular classrooms and their perceived level of self-efficacy?
4. What is the relationship between the beliefs and attitudes of pre-service teachers toward teaching children with disabilities within regular classrooms and their perceived level of personal competence in teaching and managing behaviour of children with disabilities?
5. What is the relationship between perceived self-efficacy and perceived personal competence of the pre-service teachers in teaching and managing behaviour of children with disabilities?
6. How do pre-service teachers perceive their personal competence in relation to how they perceive the competence of general and special education teachers in teaching and managing behaviour of children with disabilities and working with parents?

Design of the Study.

The design of the study was a combination of descriptive survey and correlation research. Shaughnessy and Zechmeister (1994: 130) state that the survey design is suitable when the purpose is to generalize from sample to a population, so that inferences can be made about some aspects of characteristics such as attitudes/beliefs.

Instrumentation.

Measures:

A seven-page questionnaire was developed for this study to examine the attitudes and beliefs of pre-service teachers of regular education toward the inclusion of children with disabilities in regular education classrooms. The instrument included an introductory letter explaining the purpose of the survey and assuring confidentiality of the information provided. The questionnaire proper consisted of four sections and the last page attached was a terminology sheet explaining the different types of disabilities.

The first section on demographic profile was developed specially for the study, while the other

three sections of the instrument were adapted and modified with permission from an instrument used for similar purposes in the local context by Nomanbhoy et al. (1998). The instrument was earlier validated and used by Minke et al. (1996) for assessing the attitudes toward several basic assumptions regarding the inclusion of children with disabilities, perceptions of self-efficacy, competence, and teaching satisfaction of teachers in regular classrooms and regular and special education teachers who co-taught in inclusive classrooms.

Section II -Self-efficacy:

For the section on self-efficacy, the scale had 14-items based on the self-report instrument developed by Gibson and Dembo (1984) which is recognized as a standard measure for both personal efficacy and teacher efficacy. The selection of these factors is based on the notion that teachers' attitudes and behaviors are determined by the interactions of many sources of information including their intuitive theories and beliefs about themselves [Clark and Peterson (1986); Dunkin and Biddle (cited in Soodak et al. 1998: 481)]. The two components identified in the instrument are: personal teaching efficacy, the belief that an individual can effect changes in his/her students, and general teaching efficacy, the belief that teaching can overcome the effect of other influences, e.g., home background. The first factor, personal teaching efficacy, consisted of eight items (see Table 8, Items 1, 5, 6, 7, 9, 10, 12, 14) and the second factor, general teaching efficacy, consisted of six items (see Table 9, Items 2, 3, 4, 8, 11, 13). Item 13 was negatively worded. Respondents used a six-point *strongly disagree* (1) *to strongly agree* (6) scale to respond to the fourteen items, eight measuring personal teaching efficacy and six measuring general teaching efficacy. *Higher* scores on *personal teaching efficacy* items indicated a *higher* personal teaching efficacy. However, five items under *general teaching efficacy* are worded in opposite direction and a *higher* score on these items indicated a *lower* general teaching efficacy. The score for Item-13 (Table 9) under GTE which is worded in the opposite direction was reverse coded to measure all responses in the same direction.

Section III - Attitudes towards Inclusion:

The twelve questionnaire items and a six-point Likert scale were used for the respondents to place their choice between *strongly disagree* (1) to *strongly agree* (6). Nine items in the section secured the subjects' perception of inclusive education in following areas: The first four survey

items (see Table 6, items 1-4) and the last five survey items (see Table 6, Items 8-12) measured general attitudes toward different aspects of teaching children with disabilities within regular classrooms. These items assessed pre-service teachers' perceptions on the effects of regular classroom placement on the social, emotional behaviour and cognitive abilities of children with and without disabilities (Items 1-3), perception of the impact on the work load of regular education teachers (Item-8), willingness of regular education class teachers as well as willingness of pre-service teachers to teach children with disabilities within regular classrooms (Item-4, Item-11 & Item-12), and philosophy of teaching children with disabilities within regular classrooms (Item-9 & Iem-10). Out of these nine items, seven survey items (see Table 6, Items 1-4, Item-8, Item-10 & Item-12) were worded in such a way that a *higher* score on the scale indicated a *negative* attitude toward inclusion. To reduce a response bias or acquiescence two survey items (see Table 6, Item-9 & Item-11) were worded in the opposite direction. The scores obtained for these two items were reverse coded to measure all responses in the same direction. As such, a *higher total score* on these nine items indicated a more *negative* attitude toward inclusion and a *lower total score* indicated a more *positive* attitude toward inclusion.

The fifth, sixth and seventh survey items (see Table 6, Items 5-7) assessed pre-service teachers' perception of competence of special education teachers through their judgements on teaching methods used, and the training and effectiveness of special education teachers in teaching children with disabilities.

Section IV - Teaching Competence:

In this section, the pre-service teachers were asked to respond to five statements that measured their perceived personal competence as also their perceived personal competence in comparison to an average regular education teacher's and an average special education teacher's competence. The five items measured their competence in teaching and managing behaviours of children with disabilities and children without disabilities and competence in working with parents. The section used a four-point Likert scale, responses varying from to *not at all competent (1)* to *highly competent (4)*. *Higher* score on the items indicated *higher* perceived competence. An open-ended question was added here for the respondents to express their views on additional knowledge and training they felt they would help with the inclusion of children with disabilities. The response to this question was content analysed using qualitative methods of analysis.

Validity of the Instrument:

Content validity refers to the representativeness of the sample and adequacy of the content (the substance, the matter and the topics) of a measuring instrument. Content validation is therefore basically judgmental. The content validity of the items on the questionnaire in this study is based on the judgement of three lecturers from the School of Education of the National Institute of Education, Singapore. Drafts of the questionnaire with the modifications made to the original instrument were reviewed by these lecturers on the applicability of the questions to the 4th year pre-service teachers of regular education. Reliability analysis for the 'Attitude Items', 'Personal Teaching Efficacy Items' and 'General Teaching Efficacy' done yielded Cronbach's Alpha of .86, .66 and .73 respectively (see Table 6, Table 8 & Table 9).

A small scale pilot testing was done with a representative sample of five pre-service teachers using the reviewed questionnaire. This was mainly to judge the clarity of the items, check time taken to complete questionnaire, possible sources of bias and ambiguity in the instrument and response formats.

Selection of Sample.

Undergraduate, pre-service teachers enrolled in the 4th year of BA/Bsc with Dip Ed and BA/BSc with Dip Ed (PE) programs at the National Institute of Education, Nanyang Technological University Singapore, were surveyed. A non-probability/ convenient sampling was used for selection of sample. A total of seventy three survey forms were given to twenty eight BSc with Dip Ed. students, twenty five BA with Dip.Ed students and twenty BA/BSc with Dip.ED (PE) students. From this, sixty-eight (N=68) or 90% usable survey forms were returned and analysed.

Data Collection:

A letter seeking approval for conducting the survey was first sent to the Deans of Schools of Arts and Science and to the Vice-Dean of the College of Physical Education. Once approval was granted, arrangements were made with coordinators and lecturers to determine convenient times for distributing the questionnaires to the students. The time selected was just before the lectures began. For the students from School of Science and the College of Physical Education, the survey was conducted in face to face situation. Before the questionnaires were given, the researcher explained the purpose of the survey. The total time taken for the students to complete the survey including the

introduction and explanation of the purpose was approximately fifteen minutes. For the BA with Dip Ed students, the survey forms were given, purpose explained and the questionnaires were collected two days after distribution at a class with the same lecturer.

Procedure used for Data Analysis.

Quantitative Analysis

Data was transferred from the questionnaires to a disk by coding, to be analyzed. The computer program used was the Statistical Package for the Social Sciences (SPSS) Version 7.5.

Descriptive statistics was used to summarize the questionnaire responses. Other non-parametric statistical techniques used were.

- Frequency distribution for the summated scores on the rating scales, efficacy and attitude toward teaching pupils with disabilities within regular classrooms.
- Reliability coefficient 'alpha' to find inter-item reliability coefficients for the scale items.
- Pearson's Product Moment Correlation Coefficient to test the possible strength and direction of inter correlation between the different dependent variables, efficacy, attitude toward teaching children with disabilities in class, and competence.
- Pearson's Product Moment Correlation Coefficient to see possible correlation between the number of electives offered and attitude toward inclusion and personal competence.
- Independent Groups T-test to test if statistically significant differences of means occur between male/female pre-service teachers and teachers with and without experience with children with disabilities during teaching practicum.
- One-way analysis of variance (ANOVA) to test if statistically significant differences of means occur between the three groups of teachers (regular education teachers. special education teachers & pre-service teachers themselves) with respect to the five items measuring the teacher competencies.

Testing was done at 'alpha' level of '0.01' and '0.05'.($p<0.01$ and $p< 0.05$).

Qualitative Analysis

The response to the open-ended question was analysed using methods outlined by Bogdan and Biklen (1992: 165-181). The first search through the sixty-eight survey forms showed that nine respondents had left the question unanswered. The remaining fifty-nine responses to the question

were searched for regularities and patterns to find common theme/ideas/categories. The second reading of the responses resulted in four collapsed and broad categories: training with no specific areas requested, training with specific areas requested, modification and support. Details of the data analysis and the results obtained are reported in Table 14.

Interpretation of results.

Results of this study support previous research outcomes in many respects. This section reports the findings and attempts to answer the six research questions that were posed and the response to the open-ended question (see Table 1- Table 14, from page 19 to page 24).

Research Question 1.

What are the beliefs and attitudes of pre-service teachers toward teaching children with disabilities within regular classrooms?

As reported in Table 5, the pre-service teachers surveyed had a moderately unfavorable attitude (M = 32, S.D. = 7.42) toward inclusion. From the response analysis obtained (See Table 6), it was clear that a majority (77.9%) agreed that the needs of children with disabilities are better met in special classes for these children. However, a strong disagreement was expressed by 81% that if integrated, the emotional, social needs and academic progress of children without disabilities would be adversely affected. Though the majority (69%) thought that they would rather not teach children with disabilities, the difference between those who felt would recommend an integration model (48.4%) and those who would not (51.5%) was fairly small. The finding supported earlier research by Moisio (1994) and Wilkzenski (1991) where pre-service teachers' response was mixed concerning the inclusion of children with disabilities in regular classrooms. The response in this study showed that the majority of pre-service teachers did not view the regular classroom as a setting where the instructional needs of children with disabilities can be effectively met and where they would be willing to teach. However, this reluctance to teach may not reflect their dislike of the children with disabilities. A 57% of sample felt that the needs of the majority of children with disabilities could be met in regular classrooms and (54%) felt that when integrated, they should not be taught in separate groups.

Research Question 2.

Are attitudes of pre-service teachers toward teaching children with disabilities in regular classrooms and their personal competence related to (a) gender, (b) previous contact with children with disabilities in their classroom during teaching practicum, and/or and (c) knowledge gained through related topics studied under Educational Studies coursework?

(a) Consistent with the findings of some other studies (Green & Harvey, 1983; Harvey & Green, 1984 and Lindsey et al., 1996), gender in this study did not have any significant effect upon the pre-service teachers' beliefs and attitudes and competence (see Table 2). However, the male teachers showed slightly better competence, efficacy and a more positive attitude toward inclusion, though the difference was not statistically significant.

(b) Previous contact with children with disabilities has been shown to have an association with certain aspects of inclusion in studies by Green and Harvey (1983), Harvey and Green (1984), Cook and Larrivee (1978), Leyser and Abrams (1983) and Lindsey et al. (1996). But this difference did not reach a significant level in this study, as there was no significant difference in attitude or competency score between those who had children with disabilities in their classroom during practicum and those who did not (see Table 3). However, as with the gender, pre-service teachers having children with disabilities in their classroom during practicum were generally slightly more positive than those that had no contact with children with disabilities in their classroom during practicum.

(c) Attitudes of pre-service teachers surveyed were not affected by the knowledge gained through different electives offered by the BA/BSc with Dip Ed and BA/BSc with Dip Ed (PE) programs at NIE (see Table 4). These findings contradicted the results of studies by Harvey and Green (1984) and Lindsey et al. (1996) that reported a positive correlation between attitude and coursework. However, the perceived personal competence of the pre-service teachers in teaching children with disabilities seemed to be associated with knowledge gain through coursework. There was significant positive correlation ($r = .266$, $p < .05$, see Table 4) between competence in teaching children with disabilities and number of electives chosen. This group's positive perception regarding teaching children with disabilities may be related to the knowledge gained through some electives they selected which would have offered them relevant knowledge regarding the handicapping conditions, characteristics and some strategies for teaching and managing behaviour of children with disabilities. This supported previous literature findings of a strong association between a previous course in special education and professional competence (Green & Harvey, 1983; Harvey & Green,

1984; Hoover, 1984; Mayhew, 1994; Leyser & Abrams, 1983 & Lindsey et al., 1996).

Research Question 3.

What is the relationship between beliefs and attitudes of pre-service teachers toward teaching children with disabilities in regular classrooms related and their perceived level of self-efficacy?

The two components of self-efficacy, PTE and GTE were measured separately in this study and there was no significant correlation between the two factors (see Table 7). This finding supports previous research findings and suggestions by Allinder (1995), Ashton and Web (1986), Gibson and Dembo (1984), Ghaith and Yaghi (1997) and Soodak and Podell (1993). These researchers found no significant correlation between the two factors and suggested that the two factors should be measured separately as teachers high in one dimension could be low in the other

The pre-service teachers reported moderately high PTE ($M = 33.9$, S.D. = 3.69. See Table 10). This suggested a fairly strong belief in their skills and ability to bring about student learning. However, their PTE, did not correlate significantly with their attitude measure (see Table 7). This may be due to the fact that PTE reflects a personal belief rather than a general belief about the teaching profession. This finding failed to support some previous studies (Allinder, 1995; Ashton & Web, 1986; Minke et al., 1996; Nomanbhoy et al., 1997; Rick & Brown, 1986-1987; Soodak & Podell, 1993; Walker, 1992). These researchers reported a positive correlation between PTE and attitudes and as such, as personal efficacy increased, their anxiety toward including children with disabilities in regular classroom decreased and they became more positive towards inclusion.

In contrast with their high PTE, the pre-service teachers' GTE was lower ($M = 22.62$, S.D. = 4.88. See Table 10). This suggested that their belief that teaching can overcome other factors such as home background of students was low. There was a strong positive significant correlation between GTE score and attitude score ($r = .440$, $p < .01$. See Table 7). For this study a higher attitude score and a higher score on the GTE items indicated a *negative* attitude toward inclusion and a *lower* sense of GTE respectively. A low sense of GTE among the pre-service teachers who are about to enter the teaching profession indicated that they perceived their ability to teach as limited by other variables like home background, parents' help and students' learning.

Research Question 4.

What is the relationship between the beliefs and attitudes of pre-service teachers toward teaching

children with disabilities within regular classrooms and their perceived level of personal competence in teaching and managing behaviour?

As reported in Table 7, there was a weak negative correlation between the perceived personal competence *score* and attitude *score* towards *teaching* children with disabilities in regular classrooms (positive correlation between the two *factors*) which was not significant. The negative correlation between the scores showed that as the competence increased (higher score), attitude became more positive (lower score). The analysis of the open-ended question (Table 14) showed that help was requested by the highest number of pre-service teachers in *teaching strategies* (25%).

Research Question 5.

*What is the relationship between perceived self-*efficacy and perceived personal *competence of the pre-service teachers in teaching and managing behaviour of children with disabilities within regular classrooms?*

This study found no significant relationship between the self-efficacy of pre-service teachers and their competence in teaching and managing behaviour of children with disabilities (see Table 7). In this respect the study failed to support earlier research by Ghaith and Yaghi (1997), Gusky (1987) and Stone and Brown (1986-1987) who found a positive correlation between the two factors

Research Question 6.

How do pre-service teachers perceive their personal competence in relation to how they perceive competence of general and special education teachers in teaching and managing behaviour of children with disabilities and working with parents?

As reported in Tables 11–13, the pre-service teachers perceived themselves to be significantly less competent than special education teachers in teaching, managing behaviour of children with disabilities and working with parents. This corroborated their high ratings on the contrasting judgements of the teaching methods, training and effectiveness of special education teachers. However, though they also perceived themselves to be less competent in these areas than the regular teachers, the difference was not statistically significant. It was interesting to find that they perceived an in-service average regular education teacher as less competent than a special education teacher in these areas.

Open ended Question.

Analysis of the open-ended question (see Table 14) supported the previous findings of the importance of additional training cited in research reviewed, especially behaviour management, teaching strategies and educational planning. Modifications to the existing curriculum, assessment format and environment were suggested under 'modifications' category. Support from principal, parents and colleagues along with special teaching resources formed another category of perceived additional help.

Implications of the Findings

The results of the study have some important implications for teacher educators. The results of the analysis of the open ended question (Table 14) and other research questions support the need for pre-service training of regular education teachers to improve their teaching efficacy, attitudes and competence in teaching children with disabilities within regular classrooms. The pre-service teachers expressed some mixed, contradictory responses to different items. A strong belief that needs of children with disabilities are better met in special schools contradicted with their belief that inclusion will not have any adverse effect upon children without disabilities and the needs of majority of children with disabilities can be met in regular classrooms. This suggested that these teachers found inclusion *desirable* but not *feasible* in absence of training, modifications and support suggested under the open-ended question.

Contributions/Limitations of the study and Suggestions for Future Research.

This study ***contributes*** to the extant literature on attitudes and beliefs of pre-service teachers toward teaching children with disabilities. Many of the findings that are reported in this study supported the previous results reported. This study is one of the first studies undertaken to assess pre-service teachers' views on inclusion in the Singapore context. As such, the study provides important information for three main stakeholders, the school personnel including teachers and administrators, the Special Education and Regular Education departments at NIE, and the Ministry of Education (MOE). The findings can contribute to future non-segregation of children with mild disabilities from the mainstream of education and support future inclusionary efforts by other programs like TEACH ME and Reach Me.

This study has three major ***limitations*** that should be addressed in future investigations. First,

the sample selected for this study was selected from the 4th year undergraduate students of NIE. Future studies could be done with the Diploma in Education students also to see what their beliefs are and whether there is any significant difference between the two groups of teachers. Such sample can increase the generalisability of the results with a more diverse group of teachers.

Second, the study is a survey done at one point in time. A longitudinal study over three to four years for the undergraduate students and over two years for the diploma students in NIE, followed by first couple of years in the schools in the in-service setting could be carried out. This will enable to see if beliefs and attitudes differ as a function of teachers' level of experience and will help to get a developmental view of such factors as teacher efficacy and attitudes.

The third limitation is the self-report nature of the study. Because it was based on self-report of attitudes, it is difficult to ascertain how closely their responses would correlate with actual behaviour. Future studies could use different approaches to gather data or a combination of quantitative and in-depth interviews for more reliable data.

Conclusion.

In conclusion, despite the limitations cited, results of the current study strongly support the fact that the pre-service teachers' beliefs and attitudes are affected by variables like efficacy and competence in teaching and managing behaviour of children with disabilities. Most important of all, special education knowledge gained through course work offered by the teacher education program plays an important part. There may be a rich literature base on attitude formation process within social psychology, but more studies and research in local context needs to be carried out to translate these processes into programs and practices for classroom teachers. NIE may have definite limits as to how much meaningful special education training can be included in the regular education course work. However, infusing the coursework offered to the general educators will be beneficial to *all* pre-service teachers.

Campbell and Fyfe, (1995: 16-17) have illustrated a course offered by Webster University in their Master of Arts in Teaching (M.A.T.) - Emphasis in Inclusive Education. The emphasis in inclusive education is designed to provide classroom teachers, regular and special educators at the preschool, elementary and secondary levels, with the key knowledge base, practical applications and

strategies necessary for implementing a successful inclusive education program appropriate to the diverse needs of students in today's classroom. This emphasis will enable practicing teachers to investigate issues and examine strategies that relate to the education of all students regardless of their ability in their school. In addition to the required courses for the respective area of concentration, students must complete at least 12 hours of appropriate coursework related to inclusive education. Some of the courses offered in this program are described in detail by the author. They are,

Planning for the Inclusive Classroom, Curricular and Instructional adaptations,

Topics in Special Education, Collaboration and Cooperative Teaching,

Advocating for Persons with Disabilities,

Topics in Special Education: Health Issues and the Special Needs Child,

Career Preparation for Students with Special Needs,

Behaviour Management for Children with Special Needs and

Integrating Resources, Community, School and Family

Some of the areas where the pre-service teachers indicated they would need help if they were to teach children with disabilities would be covered by above modules if similar options are offered during teacher education. The knowledge gained will help the pre-service teachers in increasing their competence in teaching, managing behaviour of children with and without disabilities.

A major goal of public education is to promote development of personal independence within the context of social interdependence and cooperation. People with and without disabilities are more likely to develop mutual understanding and respect the sooner they are introduced to the broad range of individual differences. What today's children and youth learn in school will directly affect the future they create for themselves, for others around them and for all in the global community (Hasazi et al., 1977: 8). Equally important is the nature and influence of attitudes of the teachers who will help inculcate these values in our children. Emphasis should be placed on coursework as well as its effect on the attitudes of teachers. Priority must be given to teacher training at both the pre-service and in service levels.

Table 1

Participants' demographic data

	Category	Frequency	%
Gender	Male	25	36.8
	Female	43	63.2
Age	21-25 years	60	88.2
	>25 years	8	11.8
			Mean= 22.78 years
Course	BA	19	27.9
	BSc	28	41.2
	Ba/BSc (PE)	18	26.5
	Honours	3	4.4
No. of Prescribed/Free Electives Offered	Nil	23	33.8
	One	32	47.1
	Two	9	13.2
	Three	1	1.5
	Four	3	4.4
Previous Experience	Yes	27	39.7
	No	41	60.3
Type of Disability Encountered	None	42	61.8
	Physical Disability	2	2.9
	Hearing Impairment	2	2.9
	Learning Disorder	7	10.3
	Visual Impairment	2	2.9
	Emotional Disorder	1	1.5
	Behaviour Disorder	10	14.7
	Autistic	1	1.5
	Others	1	1.5

Table 2

T-test: Attitudes and Personal Competence: Effect of Gender

Dep. Variable	Male			Female				
	Mean	S.D.	Cases	Mean	S.D	Cases	t-value	P
Attitude Total	31.52	7.51	43	32.63	7.43	43	-.591	.884
Competence 1	2.28	.68	25	2.02	.64	43	1.567	.073
Competence 3	2.04	.73	25	2.07	.74	43	-.161	.905

N=68, p= <0.05 (2-Tail Sig.)

Legend: Attitude Total – total of attitudinal response, Competence 1 –Competence teaching children with disabilities and Competence 3 – competence managing behaviour of children with disabilities.

Table 3

T-test: Attitude and Personal Competence: Effect of previous experience with children with disabilities.

Dep. Variable	With Experience			Without Experience				
	Mean	S.D.	Cases	Mean	S.D	Cases	t-value	P
Attitude Total	31.89	.6.50	27	32.44	8.04	41	-.297	.251
Competence 1	2.11	.64	27	2.12	.68	41	.-.066	.888
Competence 3	2.11	.64	27	2.02	.79	41	.476	.372

N=68, p= <0.05 (2-Tail Sig.)

Legend: Attitude Total – total of attitudinal response, Competence 1 – Competence teaching children with disabilities and Competence 3 – competence managing behaviour of children with disabilities.

Table 4

Correlation between number of electives, attitude and personal competence.

	Number of Electives	Attitude Total	CT	CMB
Number of Electives	1.000			
Attitude Total	-.042	1.000		
CT	.266*	-.167	1.000	
CMB	.215	-.198	.699**	1.000

N = 68. *correlation significant at the 0.05 level (2-tailed).
**** correlation significant at the 0.01 level (2-tailed).**

Note: Competence in the above table refers to competence with children with disabilities.**CT** = Competence Teaching **CMB** = Competence managing behaviour

Table 5

Mean and Standard Deviation for Total Attitude Score

	N	Mean Total	S.D.
Attitude	68	32.22	7.42

Table 6

Response distributions for the twelve attitudinal items & Alpha

Attitude items *Attitude statement summarised to fit table	M	D	A	CR	AL
1.* Social and emotional needs of children with disabilities are better met in special classes	4.31	22.1	77.9	.51	.84
2. *Social and emotional adjustment of children without disabilities is negatively affected when integrated.	2.38	81	19	.55	.86
3. *The academic performance of children without disabilities is negatively affected when integrated.	2.57	76.5	23.5	.54	.86
4. Most teachers in regular schools would rather not teach children with disabilities.	4.32	25	75	.51	.85
5. *Special education teachers use different teaching methods for school subjects from regular education teachers	4.88	11.8	88.2	59	.85
6. Special education teachers are better trained than regular education teachers to teach school subjects to children with disabilities	5.15	7.3	92.7	.64	.85
7. Special education teachers are more effective than regular education teachers in teaching school subjects to children with disabilities.	4.85	35.2	64.8	.67	.84
8. Teaching different school subjects to children with disabilities is asking too much of regular education teachers.	3.72	39.7	60.3	.49	.84
9. The needs of majority of children with disabilities can be met in regular education classrooms	3.82	42.7	5735	.54	.84

10. Children with disabilities should be usually taught in a separate group from children without disabilities in regular classroom settings	3.49	54.4	45.6	.41	.85
11. *Given the choice between integrating children with disabilities in regular classrooms and special schools I recommend an integration model.	3.51	51.5.	48.5	.51	.83
12. Most pre-service teachers who will teach in regular schools would rather not teach children with disabilities.	3.99	30.9	69.1	.41	.86

Alpha = .86

N = 68. *Note*: Percentages reflect valid percentages; **M** = Mean **D** = **Disagree** = collapsed response for Strongly Disagree, Moderately Disagree & Slightly Disagree; **A** = **Agree** = collapsed response for Agree Slightly, Agree Moderately and Agree Strongly, **CR** = Item-Total Correlation, **AL** = Alpha if Item deleted

Table 7

Correlation between attitude toward children with disabilities, general teaching efficacy personal teaching efficacy and competence.

	Total Attitude	GTE	PTE	CT	CMB
Tot Attitude	1.000				
GTE	.440**	1.000			
PTE	-.001	-.135	1.000		
CT	-.167	-.134	-.001	1.000	.699**
CMB	-.198	-.065	.185	.699**	1.000

N = 68, ** Correlation is significant at the 0.01 level (2-tailed) **CT = Competence teaching children with disabilities, **CMB** = Competence managing behaviour of children with disabilities.

Table 8

Response Distribution for the eight Personal Teaching Efficacy items & Alpha

Personal Teaching Efficacy Items	**M**	**D**	**A**	**CR**	**AL**
1. When a pupil does better than usual, many times it is because I exerted a little extra effort.	4.10	16.2	83.8	.43	.60
5. When a pupil is having difficulty with an assignment, I am usually able to adjust it to his/her level.	4.37	11.8	88.2	.30	.64
6. When a pupil gets a better grade than he/she usually gets, it is usually because I found better ways of teaching that pupil.	4.25	16.2	83.8	.44	.61
7. When I really try, I can get through to most difficult pupils.	4.6	13.2	86.8	.33	.64
9. When the grades of my pupils improve, it is usually because I found more effective teaching approaches.	4.29	7.4	92.6	.45	.62
10. If a pupil masters a new math concept quickly, this might be because I knew the necessary steps in teaching that concept.	4.47	14.7	5.3	.34	.64
12. If a pupil did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.	3.85	29.4	70.6	.28	.65
14. If one of my pupils could not do an assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.	3.97	25	75	.29	.65

Alpha = .66

N = 68. *Note*: Percentages reflect valid percentages; **M** = Mean **D** = **Disagree** = collapsed response for Strongly Disagree, Moderately Disagree & Slightly Disagree; **A** = **Agree** = collapsed response for Agree Slightly, Agree Moderately and Agree Strongly, **CR** = Item-Total Correlation, **AL** = Alpha if Item delete

Table 9

Response Distribution for the six General Teaching Efficacy items & Alpha

General teaching Efficacy Items	M	D	A	CR	AL
2. The hours in my class have little influence on pupils compared to the influence of their home environment.	3.37	54.4	45.6	.27	.71
3. The amount that a pupil can learn is related o family background.	3.75	32.3	76.7	.41	.66
4. If pupils are nor disciplined a home, they are not likely to accept any discipline.	4.26	26.4	73.6	.33	.70
8. A teacher is limited in what he/she can achieve because a pupils' home environment is a large influence on his/her achievement.	3.74	42.6	57.4	.31	.69
11. If parents would do more with their children, I could do more.	4.81	10.4	89.6	.20	.72
13. The influence of pupils' home experience can be overcome by good teaching.	2.69	83.8	16.2	.25	.72

Alpha = .74

N = 68. *Note* : Percentages reflect valid percentages; **M** = Mean **D = Disagree** = collapsed response for Strongly Disagree, Moderately Disagree & Slightly Disagree; **A = Agree** = collapsed response for Agree Slightly, Agree Moderately and Agree Strongly. **CR** = Item-Total Correlation, **AL** = Alpha if Item deleted

Table 10

Mean and Standard Deviation for Personal and General Teaching Efficacy

	N	Mean Total	S.D.
Personal Efficacy	68	33.90	3.69
General Efficacy	68	22.62	4.88

Table 11

Result of ANOVA for competence difference for "Teaching children with disabilities ".

		Sum of Squares	Degrees of freedom	Mean Square	F	Sig.
Teaching children with disabilities	Between Groups	67.804	2	33.902	102.154	.000
	Within Groups	66.706	201	.332		
	Total	134.510	203			

Post Hoc Tukey -HSD for Mean difference among groups for " Competence in Teaching children with disabilities"

Dependent Variable	(I) Teacher Type	(J) Teacher Type	M =Mean Difference (I-J)	Sig.
Teaching children with disabilities	Regular	Special	-1.09*	.000
		Pre-service	.24	.045
	Special	Regular	1.09*	.000
		Pre-service	1.32*	.000
	Pre-Service	**Regular**	**-.24**	**.045**
		Special	**-1.32***	**.000**

*N = 68. * The mean difference is significant at the 0.01 level*

Table 12

Result of ANOVA for competence difference for "Managing behaviour of children with disabilities".

		Sum of Squares	Degrees of freedom	Mean Square	F	Sig.
Managing behaviour of children with disabilities	Between Groups	81.186	2	40.593	102.537	.000.
	Within Groups	79.574	201	.396		
	Total	160.760	203			

Post Hoc Tukey-HSD for Mean difference among groups for "Competence in Managing behaviour of children with disabilities"

Dependent Variable	(I) Teacher Type	(J) Teacher Type	M = Mean Difference (I-J)	Sig.
Managing behaviour of children with disabilities	Regular	Special	-1.18*	.000
		Pre-service	.28	.026
	Special	Regular	1.18*	.000
		Pre-service	1.46*	.000
	Pre-Service	**Regular**	**-.28**	**.026**
		Special	**-1.46***	**.000**

N = 68. * The mean difference is significant at the 0.01 level.

Table 13

Result of ANOVA for competence difference for "Working with parents".

		Sum of Squares	Degrees of freedom	Mean Square	F	Sig.
Competence Working with parents	Between Groups	8.010	2	4.005	18.778	.000
	Within Groups	42.668	201	.213		
	Total	50.877	203			

Post Hoc Tukey HSD for Mean competence difference among groups for "Working with parents".

Dependent Variable	(I) Teacher Type	(J) Teacher Type	M = Mean Difference (I-J)	Sig.
Competence Working with parents	Regular	Special	-.24*	.008
		Pre-service	.25*	.005
	Special	Regular	.49*	.008
		Pre-service	.24*	.000
	Pre-Service	**Regular**	**-.25***	**.005**
		Special	**-.49***	**.000**

N = 68. * The mean difference is significant at the 0.01 level

Table 14

Summary of Responses to the open ended question.

Main Category	Sub category	N	% response
Training (Not specified)	-	5	7.3
Training (Specific areas requested)	1. Working with children with disabilities	5	7.3
	2. Coping with emotional needs of children With disabilities	6	8.8
	3. Characteristics of children with disabilities	13	19.1
	4. Educational Psychology to work with children with disabilities	5	7.3
	5. Behaviour management of children with disabilities	16	23.5
	6. Communication (sign language/Braille etc.)	6	8.8
	7. Educational Planning	13	19.1
	8. Teaching Strategies used with children with disabilities	17	25
	9. Teaching strategies that can be used with both, children with and without disabilities	1	1.4
	10. Managing behaviour of children without disabilities in integrated setting	1	1.4
	11. Compulsory special education modules dealing with teaching/managing behaviour of children with disabilities	2	2.8
	12. Rationale for integration	2	2.8
	13.Observation of special education classrooms/special education teachers	2	2.8
	14. Hands on experience/deployment in special schools	3	4.4
	15. Other training via internet, workshops, talks, forums and multi-media.	2	2.8
Modifications	1. Syllabus/curriculum	9	13.2
	2. Educational planning	4	5.8
	3. Assignments/exam. Format	3	4.4
	4. More curriculum time	4	5.8
	5. Class size (smaller class size about 25 not 40)	2	2.8
	6. Classroom arrangement(according to ability)	1	1.4
	7. Two teachers in integrated class	1	1.4
	8. Special and regular education teacher in integrated class	3	4.4
	9. Physical environment :special toilets, ramps, escalators, integrated classes on ground level	3	4.4
	10. Educating children without disabilities to understand children with disabilities	2	2.8
	11. Focussing Primary or Secondary schools rather than both in teacher training with addition of special education modules.	1	1.4
Additional Support	1. Support from principal	2	2.8
	2. Support group among teachers	1	1.4
	3. Parental/home support	4	5.8
	4. Special teaching resources	2	2.8
No response	-	9	13.2

N= 68 . n = tally marks. *Note:* A single respondent could contribute in more than one category

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